

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: M. MICHAEL PITTS, JR., and RODRIGO F.V. ROMO

DOCKET NO.: 111732.00012

SERIAL NO.:

EXAMINER:

FILED:

ART UNIT:

TITLE: CAPACITIVE ELECTROSTATIC PROCESS FOR INHIBITING THE  
FORMATION OF BIOFILM DEPOSITS IN MEMBRANE-SEPARATION  
SYSTEMS

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Antonio R. Durando  
Quarles & Brady Streich Lang  
One South Church Avenue  
Suite 1700  
Tucson, AZ 85701

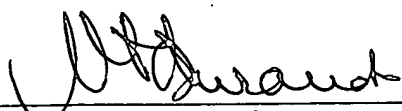
INFORMATION DISCLOSURE STATEMENT

Dear Sir:

In keeping with the duty of candor and good faith owed to the Patent and Trademark Office, applicant wishes to make of record the items on attached PTO Form 1449. Pursuant to 37 CFR 1.98(d), copies of the U.S. and non-patent documents listed in Form 1449 are not submitted herewith because previously cited by and/or submitted to the Office during prosecution of U.S. Serial Nos. 10/047,493 and 09/416,255, the priorities of which are being claimed for this application.

Applicants believe that none of the referenced material, alone or in combination, anticipates or renders obvious their invention, as claimed in the attached continuation application. The publication WO 99/50186 is submitted because believed to be relevant to the anti-corrosion and reverse-osmosis claims in the parent application, but it is not believed to anticipate or render obvious the claims related to biofilm formation.

Respectfully submitted,



Antonio R. Durando  
Reg. No. 28,409

Date: 3/9/04

FORM PTO-1449

THE UNITED STATES PATENT AND  
TRADEMARK OFFICE

<p>LIST OF PRIOR ART</p> <p>Cited by Applicants as Relevant to Invention entitled:</p> <p>CAPACITIVE ELECTROSTATIC PROCESS FOR INHIBITING THE FORMATION OF BIOFILM DEPOSITS IN MEMBRANE-SEPARATION SYSTEMS</p>	ATTY. DOCKET NO.	SERIAL NO.
	111732.00012	
	APPLICANTS:	
	M. MICHAEL PITTS, JR., et al.	
	FILING DATE	GROUP

## U.S. PATENT DOCUMENTS

EXAMINERS INITIALS	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE
	3 9 3 3 6 0 6	01/20/1976	HARMS	204	152	12/73
	4 0 2 4 0 4 7	05/17/1977	CLARK ET AL.	204	302	01/76
	4 2 3 8 3 2 6	12/09/1980	WOLF	210	695	09/79
	4 2 7 8 5 4 8	07/14/1981	BETTINGER ET AL.	210	636	08/79
	4 7 5 5 3 0 5	07/05/1988	FREMONT ET AL.	210	748	04/86
	4 8 0 2 9 9 1	02/07/1989	MILLER	210	705	10/84
	4 8 8 6 5 9 3	12/12/1989	GIBBS	204	302	02/89
	4 9 0 2 3 9 0	02/20/1990	ARNESEN	204	149	03/88
	4 9 1 5 8 4 6	04/10/1990	THOMAS, JR. ET AL.	210	702	03/89
	5 0 2 2 4 1 9	06/11/1991	THOMPSON ET AL.	134	102	04/87
	5 1 1 4 5 7 6	05/19/1992	DITZIER ET AL.	210	195.1	10/90
	5 1 2 8 0 4 3	07/07/1992	WILDERMUTH	210	695	02/91
	5 3 2 6 4 4 6	07/05/1994	BINGER	204	305	07/92
	5 5 9 1 3 1 7	01/07/1997	PITT, JR.	204	667	02/94
	5 8 0 7 4 3 9	09/15/1998	AKATSU ET AL.	134	32	09/97
	5 8 1 7 2 2 4	10/06/1998	PITTS, JR.	204	571	01/97
	5 9 3 2 0 2 7	08/03/1999	MOHINDRA ET AL.	134	21	01/98
	6 1 8 0 0 5 6	01/30/2001	MCNEEL ET AL.	422	15	12/98

## FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLTN YES/NO
WO 99/50186	10/07/1999	PCT			
DE 198 06 796 A1	02/19/1998	Germany			
1-245868	02/10/1989	Japan			
2-298397	10/12/1990	Japan			

FORM PTO-1449

THE UNITED STATES PATENT AND  
TRADEMARK OFFICE

<p>LIST OF PRIOR ART</p> <p>Cited by Applicants as Relevant to Invention entitled:</p> <p>CAPACITIVE ELECTROSTATIC PROCESS FOR INHIBITING THE FORMATION OF BIOFILM DEPOSITS IN MEMBRANE-SEPARATION SYSTEMS</p>	ATTY. DOCKET NO.	SERIAL NO.
	111732.00012	
	APPLICANTS:	
	M. MICHAEL PITTS, JR., et al.	
	FILING DATE	GROUP

## OTHER PRIOR ART (including Author, Title, Date, Pertinent, Etc.)

	A.J. Sale, "Effects of High Electric Fields on Microorganisms," Biochimica et Biophysica ACTA 781-788 (1967)
	R.W. Glaser, "Reversible Electrical Breakdown of Lipid Bilayers: Formation and Evolution of Pores," Biochimica et Biophysica ACTA 275-286 (1988)
	C.P. Davis, "Effects of Microamperage, Medium, and Bacterial Concentration on Iontophoretic Killing of Bacteria in Fluid," Antimicrobial Agents and Chemotherapy 442-447 (1989)
	C.P. Davis, "Bacterial and Fungal Killing by Iontophoresis with Long-Lived Electrodes," Antimicrobial Agents and Chemotherapy 2131-2134 (1991)
	S.A. Blenkinsopp, "Electrical Enhancement of Biocide Efficacy Against Pseudomonas Aeruginosa Biofilms," Applied and Environmental Microbiology 3770-3773 (1992)
	C.P. Davis, "Quantification, Qualification, and Microbial Killing Efficiencies of Antimicrobial Chlorine-Based Substances," Antimicrobial Agents and Chemotherapy 2768-2774 (1994)
	J. Jass, "The Effect of Electrical Currents and Tobramycin on Pseudomonas Aeruginosa Biofilms," Journal of Industrial Microbiology 234-242 (1995)
	N. Wellman, "Bacterial Biofilms and the Bioelectric Effect," Antimicrobial Agents and Chemotherapy 2012-2014 (1996)
	J. Jass, "The Efficacy of Antibiotics Enhanced by Electrical Currents Against Pseudomonas Aeruginosa Biofilms," Journal of Antimicrobial Chemotherapy 987-1000 (1996)

EXAMINER

DATE CONSIDERED

\*Examiner: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.